Nathanael Adrian T. Cua

+63 915 747 7263 | **nathanael_cua@dlsu.edu.ph** | **Github** | **LinkedIn**
Manila, Philippines

Education

De La Salle University — Malate, Manila, Philippines
BS Computer Engineering; CGPA: 2.973/4.0 — *2021 – Present*

De La Salle Lipa Senior High School — Lipa, Batangas, Philippines
Senior Highschool (STEM); Percentage: 93.20% — *2019 – 2021*

De La Salle Lipa Integrated School — Lipa, Batangas, Philippines
Junior Highschool; Percentage: 89.05% — *2016 – 2019*

Technical Skills

- **Programming**: C, C++, Python, Java, Verilog/VHDL, Bash, HTML, JavaScript, Perl, OOP, MPLAB, PIC
- **Databases**: MySQL, SQLite, PostgreSQL
- **Frameworks/Libraries**: React, Node.js, Django, OpenCV, TensorFlow, MATLAB, NumPy, Scikit-learn, Pandas, Flask, Keras
- **Developer Tools**: Git, VS Code, Xilinx ISE/Vivado, KiCAD, Eagle, Arduino IDE, Proteus, Nmap, Wireshark, Bash Scripting, MagicQ PC
- **Concepts**: Machine Learning, Web Development, Embedded Systems, Computer Vision, Digital Signal Processing, Network Protocols (TCP/IP, NDI, Dante), Network Analysis, Circuit Design, Hardware-Software Integration, System Administration (Basic), Control Systems

Experience

Green Media Group - Technical Operator — 2023 – Present
- Operated and troubleshooted stage lighting systems (MagicQ PC) and designed/operated LED walls for concerts and events with 1,000+ attendees.
- Managed video/photo documentation workflows and broadcast systems leveraging Network Device Interface (NDI) and Dante audio protocols.
- Configured and integrated multimedia hardware including ATEM Video Switchers, OBS Studio, Companion, and Art-Net controllers.
- Troubleshot broadcast and lighting issues during live events to ensure minimal disruption.

DLSU Association of Computer Engineering Students (ACES) - Officer — 2021 – 2024
- Served as Junior Officer for Logistics (2023-2024) and Assistant Vice President for Human Resources (2022-2023).
- Managed official Facebook page, improving engagement via interactive content and campaigns; led wellness check initiatives.
- Handled documentation, event coverage, survey distribution, and event hosting.

Greenhills Christian Fellowship - Creative Media and Communications Volunteer — 2020 – Present
- Managed and configured a robust multi-computer broadcast system using NDI protocol and Dante Audio over LAN.
- Operated interconnected systems involving ATEM video switchers, OBS, Companion, Art-Net, and Resolume.
- Proficiently troubleshot technical issues during live broadcasts, ensuring minimal disruption.

Arthur's Gadget Shop - Sales Representative — 2020 – 2021
- Managed the business Facebook page, handled online orders, and provided customer service for an online electronics shop.

Projects

SNOOP – Linux-based Network Monitor Github | Docs
- Developed a secure, web-based network scanner using Bash scripting (Nmap) and Python Flask.
- Automated network discovery (Ping/ARP scans), logged active hosts, and generated downloadable reports.

Traffic Sign Detection (CNN) Github
- Built a Python app using OpenCV and a TensorFlow/Keras CNN for real-time traffic sign detection and classification from webcam feeds.
- Implemented image preprocessing techniques for improved accuracy.

Enhanced RISC-based Processor Github
- Designed and enhanced a 32-bit MIPS RISC processor using Verilog to support expanded 4GB memory and additional I/O ports.
- Performed simulation and functional verification using Xilinx Vivado.

Night Motion Detection / Detail Enhancement Github | Docs
- Developed computer vision algorithms (Python, OpenCV) using HSV contrast enhancement and Adaptive Gaussian Thresholding for low-light image improvement.
- Achieved significant noise suppression and enhanced detail visibility for surveillance/autonomous driving applications.
- Collaborated within a 4-person team.

Line Follower Robot (PIC Microcontroller)
- Designed, simulated (Proteus), and programmed (C, MPLAB) an autonomous line-following robot using PIC16F877A, IR sensors, and L239D motor driver.
- Implemented real-time control logic with PWM for precise motor speed adjustments.

POS System for Alie's Kitchen Github (Collaborator)
- Created a web-based POS system using Django and SQLite.
- Implemented secure authentication and role-based access for 4+ staff members.
- Reduced manual order entry time by 50%.

Personal Portfolio Website Github
- Built a responsive portfolio website using Node.js, React, and Bootstrap with optimized load times.
- Created interactive project showcases with form validation and Node.js user authentication.

Date-based Linux File Sorter (Perl) Github
- Developed a Perl script using File::Path to automatically sort files into date-based directories in Linux.
- Implemented robust error handling to improve file organization efficiency.

Digital Timer using Integrated Circuits
- Designed and simulated (Circuitverse) a digital stopwatch circuit using 4026 and 4017 decade counters.
- Implemented start/stop and reset functionality on a physical breadboard.

Honors & Awards

First Dean's Lister - AY 2021-2022 Term 1

Second Dean's Lister - AY 2021-2022 Term 2, AY 2022-2023 Term 1 & 2, AY 2024-2025 Term 1